Abstract of the Disclosure

For routing packets by rules in a packet network, a system and method in a routing device for selecting rules to apply to packets having each N fields in a header, considers rules as entities in N-dimensional space, projects the rules onto N-axes in the space, marks the beginning and ending of each projection as breakpoints, numbers intervals between breakpoints in sequential binary numbers, associates a subset of the set of rules as applicable to each interval between breakpoints on each axis, then considers a packet as a point in the N-dimensional space according to its header field values, locates the binary numbered interval into which the point projects on each axis by performing a search on each axis for the numbered interval into which the point projects on that axis, thereby determining the subset of rules applying to the packet for that axis, and determines the second set of matching rules from the subsets of rules by selecting those rules as matching the packet that apply to the packet on at least one of the N axes. Optional and enhanced methods are taught for special circumstances.